LUMMI NATION
SPILL PREVENTION AND RESPONSE CAPABILITY DEVELOPMENT

2011 Annual Synthesis Report

Prepared For:
Lummi Indian Business Council

Prepared By:
Water Resources Division
Lummi Natural Resources Department

January 2012

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Introduction

Large amounts of crude oil, petroleum products, and other hazardous materials are transported and stored near the Lummi Indian Reservation. These hazardous materials are transported by ships, pipelines, trucks, and railroad and are used, produced, and/or stored throughout the Reservation area, particularly in the Cherry Point Heavy Impact Industrial Zone immediately north of the Reservation boundary. Accidents, equipment failure, and human error have the potential to result in large spills and disastrous human and environmental consequences. Many of these hazardous materials are toxic to people and animals if inhaled or contacted. Oil and chemical spills or releases to waters on or adjacent to the Reservation have the potential to threaten public health and safety and destroy some of the most productive and valuable ecosystems in the world. Spills or releases of petroleum products, chemicals, or other hazardous materials to land can threaten public safety, public health, and the environment. To date, there has not been a large hazardous material spill on the Reservation that has impacted Lummi Nation Waters. However, future residential and economic growth on the Reservation, in the adjacent Cherry Point Heavy Impact Industrial Zone, and in areas upstream from the Reservation will increase the risk of a hazardous material emergency on the Reservation.

Because of the potential consequences, it is important for the Lummi Nation to develop and implement a plan to effectively respond to a hazardous material spill or release on or adjacent to the Reservation. The Lummi Natural Resources Department has been actively developing spill response capabilities since the mid-1990s and completed the Lummi Nation Spill Prevention and Response Plan in October 2005 (LWRD 2005). Continuing efforts to develop spill prevention and response capabilities include staff training and spill response drills, equipment upgrades, planning, research, and public outreach. These efforts contribute to achieving the Lummi Nation goals of protecting the public health and safety of Reservation residents and protecting treaty rights to fish and gather throughout all usual and accustomed areas. These activities also contribute to achieving the EPA strategic goals of clean and safe water and healthy communities and ecosystems.

This annual synthesis report is a summary of the Lummi Nation spill prevention and response capability development activities conducted during the January 1, 2011 through December 31, 2011 period. The activities are divided into the following categories: Staff Training and Oil Spill Response Drills, Equipment, Oil Spill Response Incidents, Public Outreach, and Data Collection/Research.

Spill Prevention and Response Capability Development Activities

1. Staff Training and Oil Spill Response Drills:

Spill prevention and response training for staff members is conducted through both dedicated classes and through table-top and boom deployment exercises. The staff members identified below attended the following training programs, workshops, or oil spill response drills during 2011. Agendas or lists of training topics that were transmitted to the EPA as part of semi-annual progress reports and are not being transmitted as part of this annual synthesis report.

a) Introduction to the Incident Command System (ICS-100), February 1, 2011. Attendee: Gerald Gabrisch.
b) On April 13, 2011, Frank Lawrence III, Water Resources Planner I, and Victor Johnson, GIS/Water Resources Technician III, participated as Tribal On-Scene Coordinators in the Crude Oil Spill Table Top Exercise hosted by the ConocoPhillips refinery in Ferndale, WA.
c) On May 4, 2011, Frank Lawrence III, Water Resources Planner I, and Don Kruse, Project Biologist, participated in the river oil spill response drill hosted by Kinder Morgan and the Marine Spill Response Corporation (MSRC) at Hovander Park, Ferndale, WA.
d) On July 27, 2011, fifteen members of the Lummi Natural Resources Department (LNR) and the Lummi Nation Police Department (LNPD) and one employee of MSRC conducted a half-day oil spill response drill with boom deployment at the mouth of the Lummi River (NPS-09). Attendees: See attached memorandum.
e) On October 17 through 19, 2011, twelve members of the LNR and LNPD attended a 24-hour Hazardous Waste and Emergency Response (HAZWOPER) standard training according to CFR 1910.120(q)(6)(ii) (operations level) conducted by the Washington Department of Ecology in Anacortes, WA. Attendees: See attached memorandum.
f) On November 3, 2011, thirteen members of the LNR and the LNPD conducted or observed a half-day oil spill response drill with boom deployment at one of the tidegates of the Seapond Aquaculture Dike (NPS-14). Attendees: See attached memorandum.
g) Introduction to the Incident Command System (ICS-100), December 16, 2011. Attendee: Hilary N. Cosentino.
h) National Incident Management System (NIMS), An Introduction, December 22, 2011. Attendee: Hilary N. Cosentino.

2. Equipment:

a) Navigational lights and flood lights for night/dusk operation were installed on the spill response boat “MV Responder”. Routine maintenance was performed for the motor.

b) Seven bales of sorbent pads (700 pads) and seven personal flotation devices (PFDs) were restocked.

3. Oil Spill Response Incidents:

a) On August 17, 2011, Monika Lange, Natural Resources Analyst, responded to a report of an on-land oil spill at the dock of Fisherman's Cove. The 5-gallon machine oil spill was contained with sorbent pads. See attached memorandum.

4. Public Outreach:

The oil spill prevention and response activities were publicized in the community through articles in the Lummi Nation monthly newspaper (*Squol Quol*).

a) A *Squol Quol* article in the September edition described the Lummi River Oil Spill Response Drill on July 27, 2011. A poster with images of the drill and excerpts of the Geographic Response Plan (GRP) is displayed at a publicly accessible location in the LNR building and was also provided to the Police Station and the Lummi Bay Hatchery.
b) A *Squol Quol* article in the November edition described the oil spill response training that the Lummi Oil Spill Response Team conducts regularly on the Reservation and reported the participation of LNR and LNPD members in the October 17 through 19, 2011 HAZWOPER training.
c) The Tidegate Oil Spill Response Drill on November 3, 2011 was reported in the December edition of the *Squol Quol*.

Information about oil spill prevention and response capabilities (e.g., training logs, emergency contact information, equipment list, and the Unified Command Structure for the Lummi Natural Resources Department) are published on the Water Resources Division page of the Lummi Natural Resources Department website (http://lnnr.lummi-nsn.gov/LummiWebsite/Website.php?PageID=67) and regularly updated.

5. Data Collection/Research:

The Lummi Natural Resources Department staff regularly conducts data collection activities and research in support of the overall departmental mission to protect and restore tribal natural resources. These data collection/research activities support the goals of the oil spill prevention and response capability development by documenting background and ambient conditions. This information will be useful in evaluating the effectiveness of response efforts in the event of an oil spill and to protect public health and safety.

In addition, the Lummi Water Resources Division has conducted a number of activities that support efforts to prevent and respond to spills including developing and adopting water quality standards, storm water management regulations, and regulations that identify civil fines for activities that negatively impact Lummi Nation Waters.

Although some of these data collection/research and related activities are funded through the EPA (e.g., the ambient water quality monitoring program), other data collection and research activities are supported through other funding sources. Data collection/research activities conducted during 2011 that were focused on quantifying the tribal natural resources on tribal tidelands included the annual Manila Clam Stock Assessment Survey for 2011, which was conducted in Lummi Bay, Portage Spit, Brant Flats, and Brant Island.

Reference:

Lummi Water Resources Division (LWRD). 2005. Oil Spill Prevention and Response Plan. Prepared for the Lummi Indian Business Council. October

ATTACHMENTS

INTEROFFICE MEMORANDUM

TO: MERLE JEFFERSON SR., EXCECUTIVE DIRECTOR
LEROY DEARDORFF, ENVIRONMENTAL DIRECTOR
JEREMY FREIMUND, WATER RESOURCES MANAGER

FROM: MONIKA LANGE, NATURAL RESOURCE ANALYST

SUBJECT: **APRIL 13, 2011 CONOCOPHILLIPS TABLE TOP EXERCISE**

DATE: 5/10/2011

CC:

The ConocoPhillips refinery in Ferndale, WA, hosted the 2011 Ferndale Crude Oil Spill Table Top Exercise in conjunction with the Washington State Department of Ecology and the Coast Guard on April 13, 2011. The exercise simulated an crude oil spill from the loading dock at Cherry Point.

Frank Lawrence III, Water Resources Planner I, and Victor Johnson, GIS/Water Resources Technician III, participated in the exercise in the Unified Command in the role of tribal On-Scene Coordinators (OSCs).

Attached is the overview over the exercise from the "Player's Manual" for the drill.

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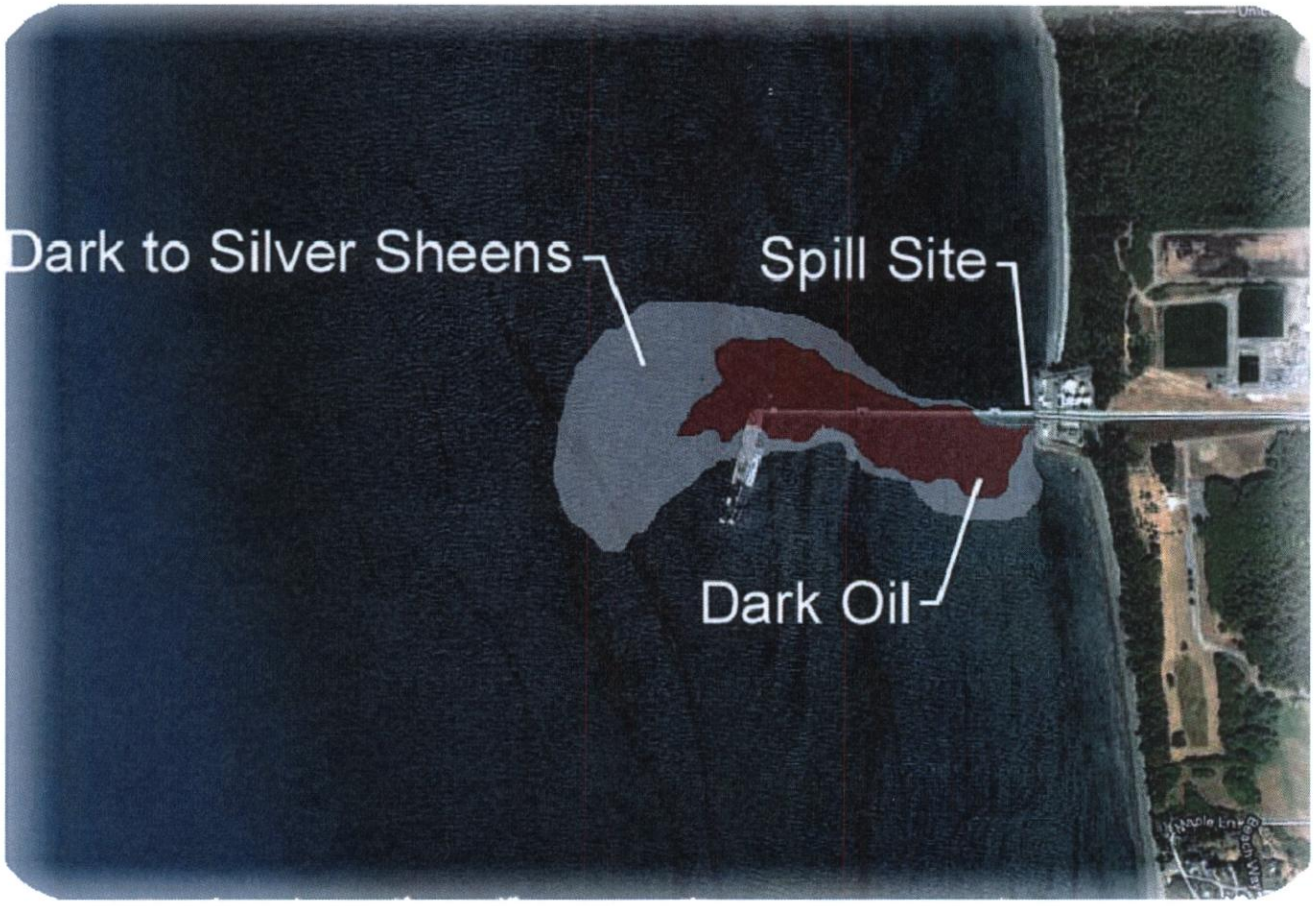
ConocoPhillips

2011 Ferndale Crude Oil Spill Tabletop Exercise

Player's Manual



Washington State Tabletop Exercise
Ferndale, Washington
April 2011

Prepared by: O'Brien's Northwest Region Response Team, Seattle, WA 206-679-3658

O'BRIEN'S
RESPONSE MANAGEMENT

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TABLE OF CONTENTS

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PART 1: EXERCISE OVERVIEW & OBJECTIVES

Purpose:	The *2011 Ferndale Crude Oil Spill* tabletop exercise will provide an opportunity for response personnel to demonstrate and practice the implementation of the ConocoPhillips Ferndale Refinery's Emergency Response Plan.
Format:	This will be a tabletop exercise. Deployment of field resources will be simulated.
Duration:	This will be a one-shift exercise and is anticipated to be completed within one operational day.
Date:	April 13, 2011
Location:	ConocoPhillips Ferndale Refinery 3901 Unick Road Ferndale, Washington
Participants:	ConocoPhillips' Response Team, United States Coast Guard, Skagit County, MSRC, O'Brien's Response Management, NRCES, IOSA.

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Exercise Objectives:

1. Meet ConocoPhillips, Washington Department of Ecology, and United States Coast Guard's regulatory requirements and the associated Preparedness for Response Exercise Program (PREP) guidelines including:
   - Staff Mobilization: mobilize ConocoPhillips, agency, and contractor staff as appropriate
   - Establishment of a Unified Command
   - Response Management System: establish a functioning On-Scene Command Incident Command System (ICS) organization; implement the ICS Planning Cycle through the successful completion of a Tactics Meeting and work towards a Planning Meeting
   - Assessment: simulate initial site assessment and ongoing field and facility safety assessments
   - Containment: simulate containment of spilled product
   - Recovery: simulate recovery of spilled product (also see #2 below)
   - Protection: simulate protection of sensitive sites as outlined in the North Puget Sound Geographic Response Plan; simulate protection of other property and economic interests
   - Resource Tracking: effectively monitor the check-in, status, and location of personnel and tactical resources (real and simulated) throughout the exercise
   - Disposal: develop a Waste Disposal Plan
   - Communications: implement effective practices for communication within the Command Post and between Command Post and field (simulated) personnel (also see #3 below)
   - Transportation: if appropriate, develop a Transportation Plan and Air Operations Plan
   - Personnel Support: develop a plan to support dining, housing, and other needs of response personnel
   - Documentation: complete a file of all relevant exercise documentation

2. Demonstrate 24-hour oil recovery crediting.

3. Respond to wildlife impact issues.

4. Establish a Liaison Officer and exercise the Liaison staff.

5. Establish a Joint Information Center and prepare for a Press Briefing.

6. Assess the potential for use of alternative response techniques.

The Drill Design Team has determined that this exercise will ***not*** directly address:

1. **Convergent volunteers**
2. **Terrorism/security/classified intelligence**
3. **Cultural resources**
4. **Local officials briefing**
5. **NRDA** Natural Resource Damage Assessment
6. **Incident Investigation**

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PART 2: EXERCISE TIMELINE

0700	Doors Open, Sign-In
0745	Safety Moment, Welcome and Introductions
0800	Drill Kickoff
1130	Lunch (Working)
1500	Conclusion of Play (Time Approximate)
1515	Hotwash and Drill Wrap-Up
1545	Drill Ends

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PART 3: EXERCISE GROUND RULES

1. Safety is a primary priority for this exercise, and will not be compromised.
2. Command post personnel are expected to comply with established facility safety and security rules/procedures at all times that they occupy the Exercise facility.
3. Report any potential safety problems to your designated Section Chief, the Incident's Safety Officer, or to Exercise Truth/Control
4. **Any real emergencies, injuries, or accidents must be reported to Josh Ross and/or 8333 immediately.**
5. **Exercise participants should call 8333 for any injuries requiring immediate emergency medical assistance**.
6. If a real emergency occurs, the Lead Exercise Controller may declare a cease of exercise play. The Lead Exercise Controller will then provide directions to exercise players on how to proceed.
7. This is a one-day exercise beginning at 08:00 and ending at 16:00.
8. The exercise will be conducted in real time until exercise objectives are met or until the Lead Controller calls an end to exercise play.
9. **All written and oral communications must begin and end with the statement, "This is a drill."**
10. This exercise will be guided by injects from Exercise Truth/Control. Treat these injects as if they were real events – do not modify them.
11. If Exercise Truth/Control determines that suspension of play will expedite meeting of exercise objectives, the Lead Exercise Controller will declare a timeout. All exercise play will freeze at the timeout and will start at that point when play is resumed (unless stated otherwise by the Lead Exercise Controller).
12. Actions are to **stop short of actual purchase, contract or mobilization of response equipment, or commitment of any funds**.
13. All exercise documentation other than evaluation forms must be turned in to the Documentation Unit Leader by the end of the exercise. Exercise evaluation forms should be submitted to the Lead Exercise Controller.
14. All participants should wear some form of identification. Command Staff, General Staff, Unit Leaders, and Branch Directors must wear position vests and/or name tags that clearly identify their ICS position.
15. Observers and evaluators are not to interfere with exercise players while these players are carrying out their roles.
16. Weather, Tides, and Currents will be scripted. Players will not gather weather, tide, or current information from the internet or from any source other than Truth.

PART 4: EXERCISE ASSUMPTIONS

1. United States Coast Guard Standard Operating Procedures for responding to the simulated incident are being followed; this agency has responded as it normally would be expected to respond between the time the incident took place and the start of exercise play.

2. Sabotage and/or terrorism are not suspected (see Exercise Objectives in "PART 1: EXERCISE OVERVIEW").

PART 5: EXERCISE SCENARIO

At approximately 0300 PDT today a construction crane working at the dock, dropped a heavy load onto the pipeline during an offload procedure. The 24" line was nearly severed, resulting in a spill at the dock. The operator immediately reported the event and noticed that a significant amount of oil was spilling into the water.

Operators quickly shut down operations and secured the upstream valves to the dock; however, an estimated 2000 bbls of Alaska North Slope (ANS) crude oil was spilled from the pipeline and is assumed to have entered the water.

Immediately the dock was closed and notifications were made. MSRC and NRC have launched numerous assets to the refinery and they have been arriving throughout the morning.

A Command Post has been established at the Ferndale Refinery and a 201 has been developed. The initial command of the incident has been transferred to a Unified Command.

Current Activities:

- 201 Briefing was held earlier this morning as well as the Initial Unified Command Meeting, the UC Objectives Meeting and the Command and General Staff Meeting (see the Appendices for supporting documentation).
- Initial response deployment sites have been established at Neptune Beach and Gulf Road Beach Head.
- A first-light helicopter overflight has been ordered and is currently observing the scene. A helispot has been designated at the refinery park.
- Trajectories have been requested from the NOAA Scientific Support Coordinator.

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PART 6: EXERCISE TRUTH AND CONTROL

All field response activities (including response vessel operations and shoreline cleanup) will be simulated by Exercise Truth/Control.

Contact Exercise Truth/Control regarding:

- Predicted path of spilled product (trajectories)
- Mass balance of spilled product
- Field observations, including overflights (see below)
- Weather
- Shoreline impact
- Simulated equipment and staff estimated times of arrival
- Air monitoring results
- Safety issues and concerns

Please use pre-generated tide, current, sunrise, and sunset data.

Procedure for Gathering Field Observations

1. Designated Field Observers should proceed to Exercise Truth/Control, equipped for making observations as they would during an actual response. When necessary, field observation equipment can be simulated. In these cases, Field Observers should inform Exercise Truth/Control of the equipment they have brought with them (for example, air monitoring equipment).
2. An Exercise Controller will answer questions raised by the Field Observer. Field Observers should come to Exercise Truth/Control prepared to query a Controller.
3. Depending on the nature of the observations being collected, a Field Observer might be requested to remain in the Exercise Truth/Control room beyond the time it takes for this Observer to ask all their questions.

Procedure for Conducting a Simulated Overflight

1. Request the Overflight
   - Ensure that the proper activities to locate and secure aircraft for the overflight have been conducted.
   - When it has been determined that an aircraft is available, call Exercise Truth/Control to arrange for a simulated overflight. Inform Truth/Control of the number of personnel to be on the flight. Exercise Truth/Control will provide a time for you to proceed to the Exercise Control Room for the simulated overflight.
2. Conduct the Overflight
   - At the appointed time, all parties designated to go on the overflight should proceed to Exercise Truth/Control. Come prepared as you would for a real overflight. When necessary, field observation equipment can be simulated. In these cases, overflight participants should inform Exercise Truth/Control of the equipment they have brought with them (for example camera, base map, binoculars, etc.).
   - All participants in the simulated overflight will be required to spend a minimum of 30 minutes in Exercise Truth/Control even if the transfer of information takes less time.

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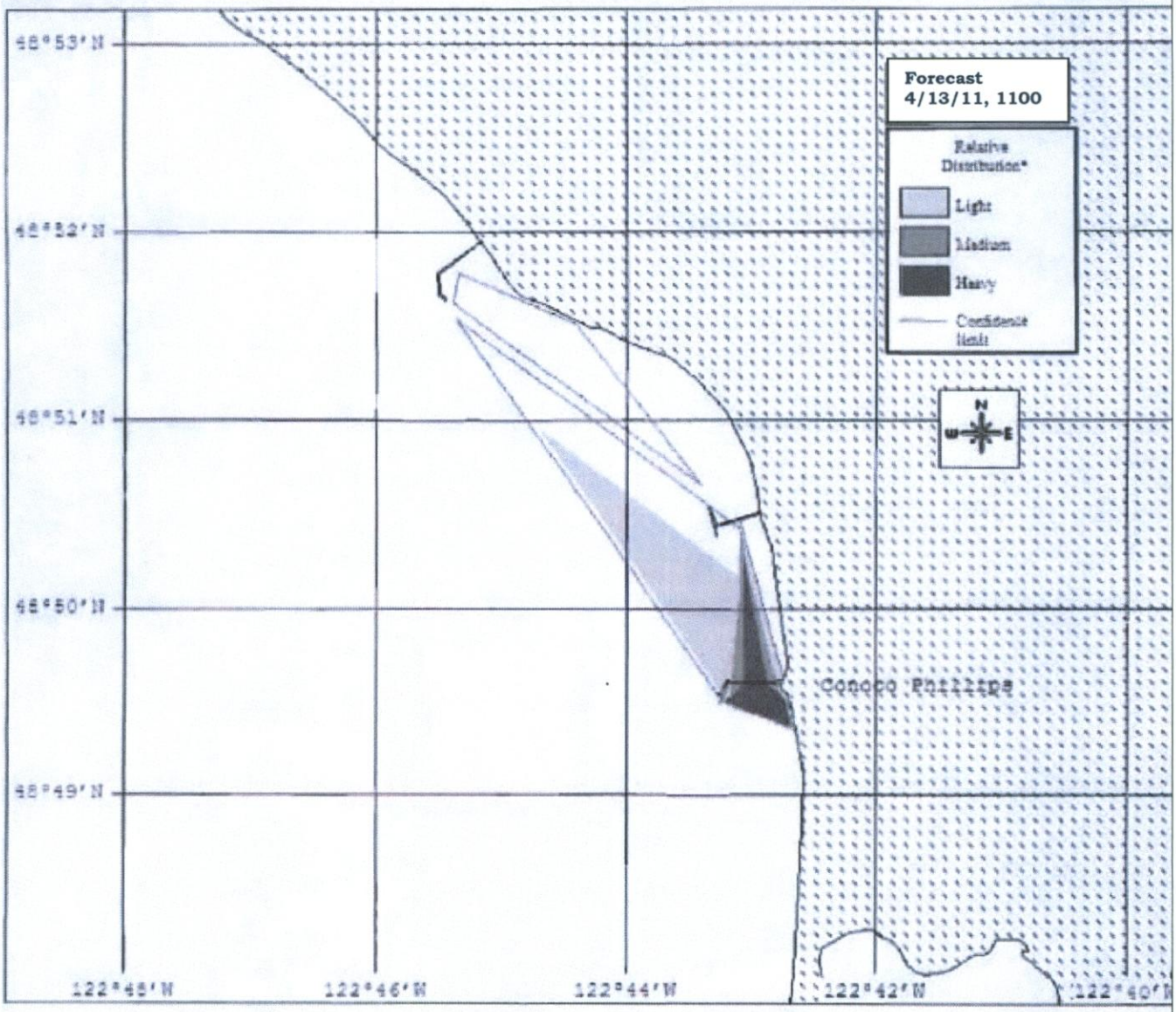
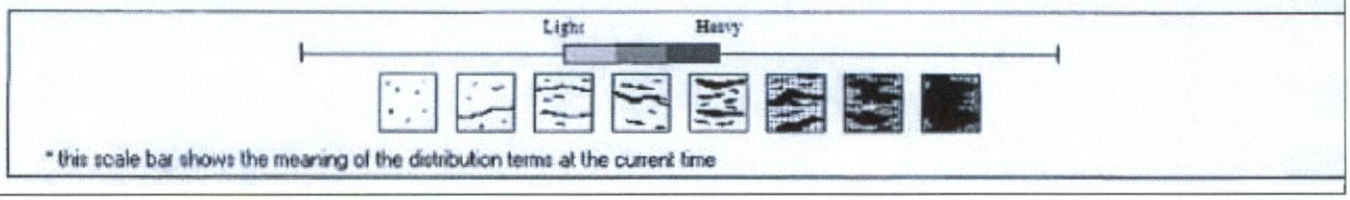
ConocoPhillips Drill 2011 **Trajectory Analysis**

Estimate for: 1100, 4/13/11

Prepared: 0700, 4/13/11 SSC

These estimates are based on the latest available information. Please refer to the trajectory analysis briefing and your Trajectory Technical Specialist for more complete information. This output shows estimated distributions of heavy, light, and medium concentrations as well as an outer confidence line. The confidence line is based on potential errors in the pollutant transport process.





* this scale bar shows the meaning of the distribution terms at the current time

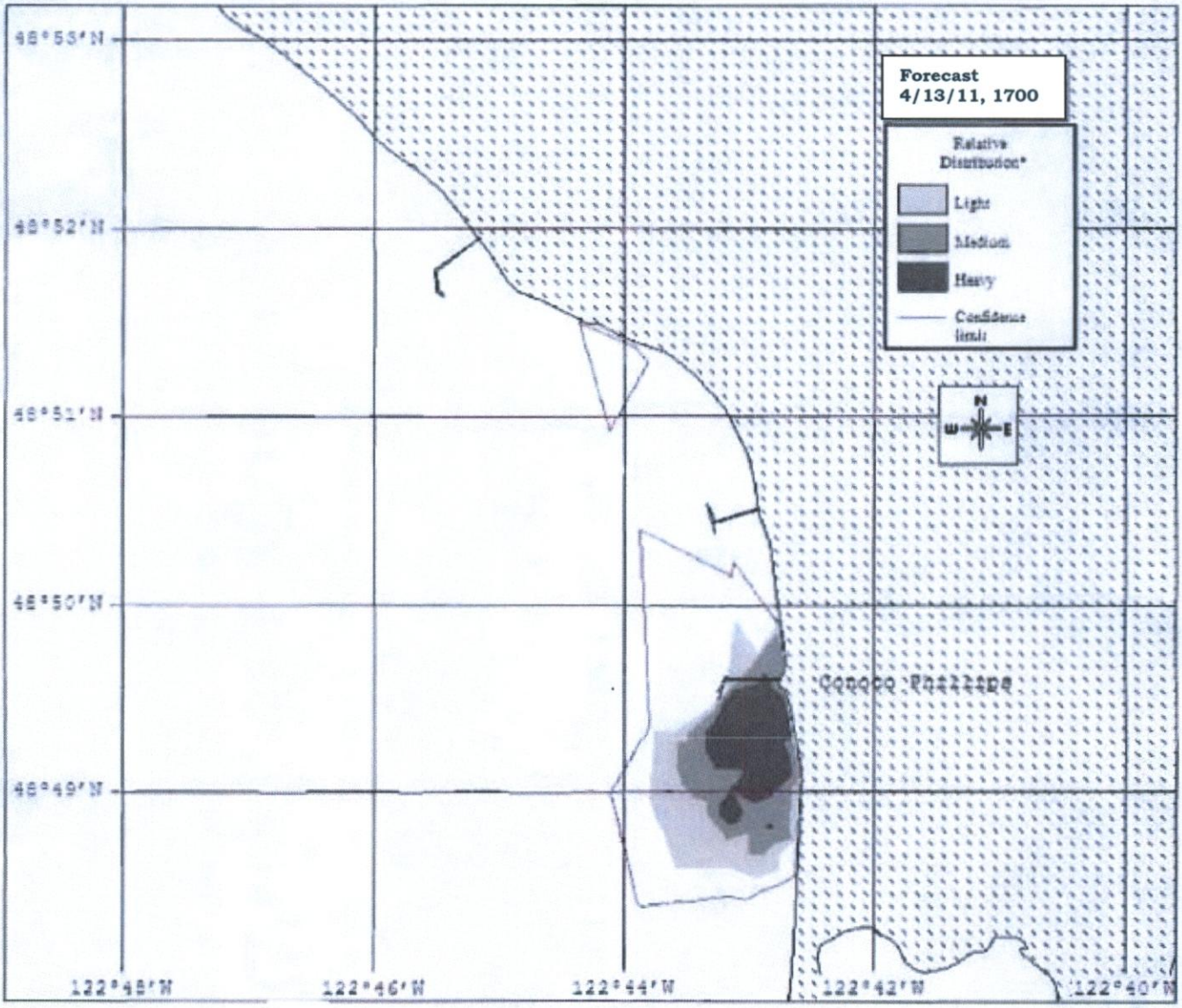
THIS IS A DRILL

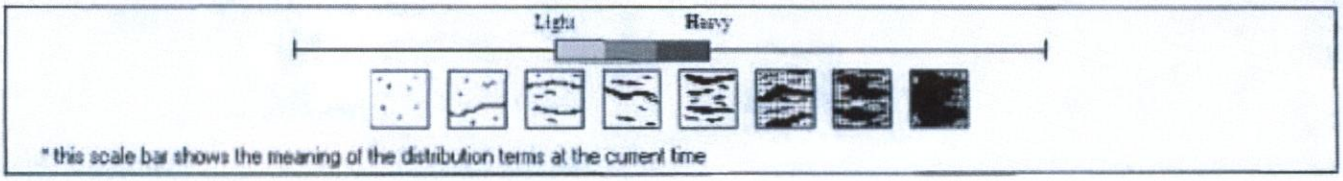
ConocoPhillips Drill 2011 **Trajectory Analysis**

Estimate for: 1700, 4/13/11

Prepared: 0700, 4/13/11 SSC

These estimates are based on the latest available information. Please refer to the trajectory analysis briefing and your Trajectory Technical Specialist for more complete information. This output shows estimated distributions of heavy, light, and medium concentrations as well as an outer confidence line. The confidence line is based on potential errors in the pollutant transport process.





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ConocoPhillips Drill 2011

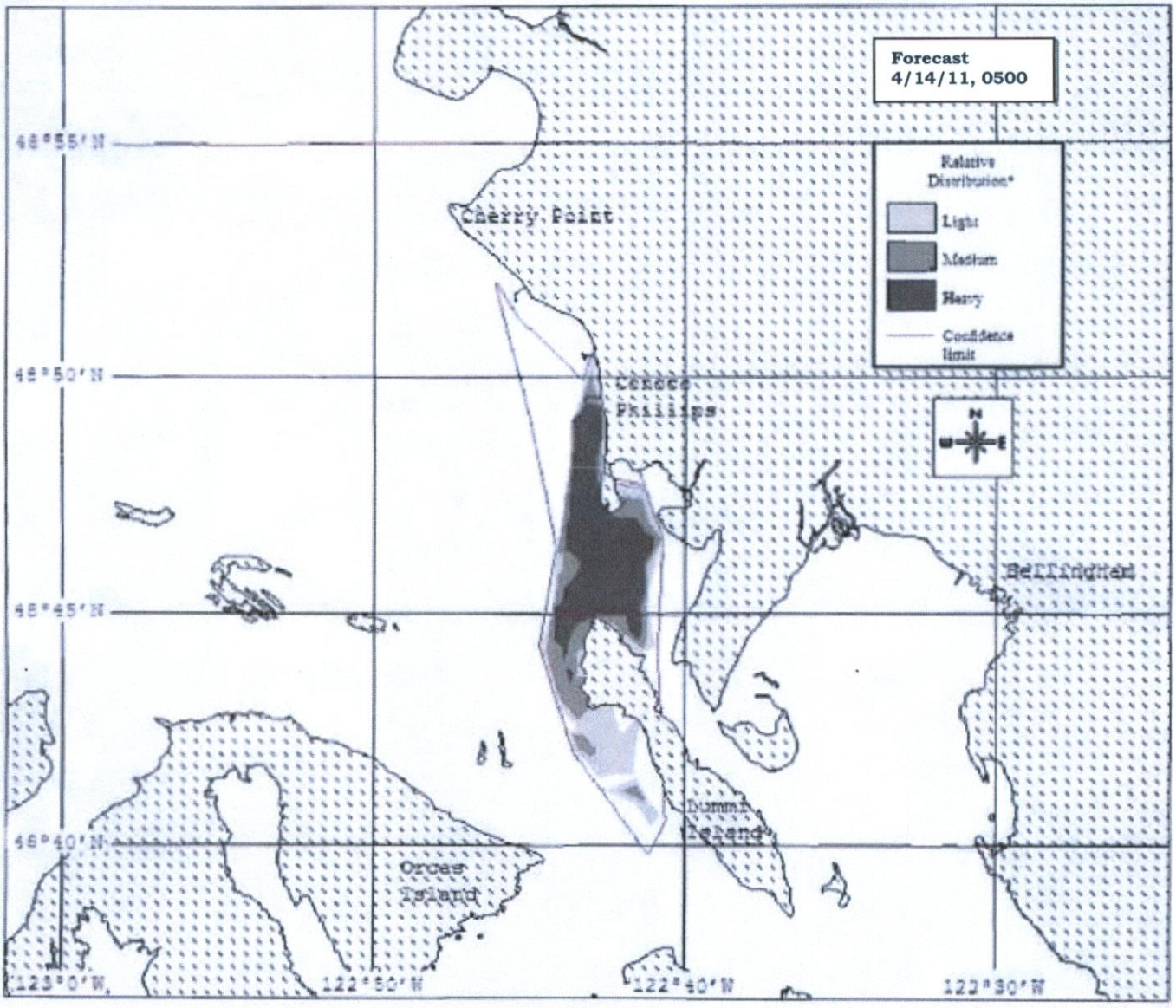
Trajectory Analysis

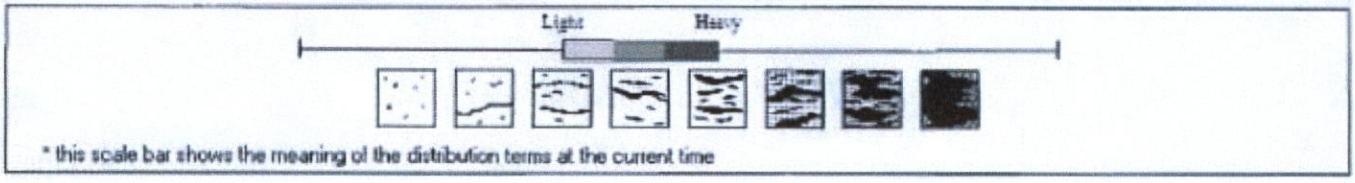
Estimate for: 0500, 4/14/11

Prepared: 0700, 4/13/11

SSC

These estimates are based on the latest available information. Please refer to the trajectory analysis briefing and your Trajectory Technical Specialist for more complete information. This output shows estimated distributions of heavy, light, and medium concentrations as well as an outer confidence line. The confidence line is based on potential errors in the pollutant transport process.





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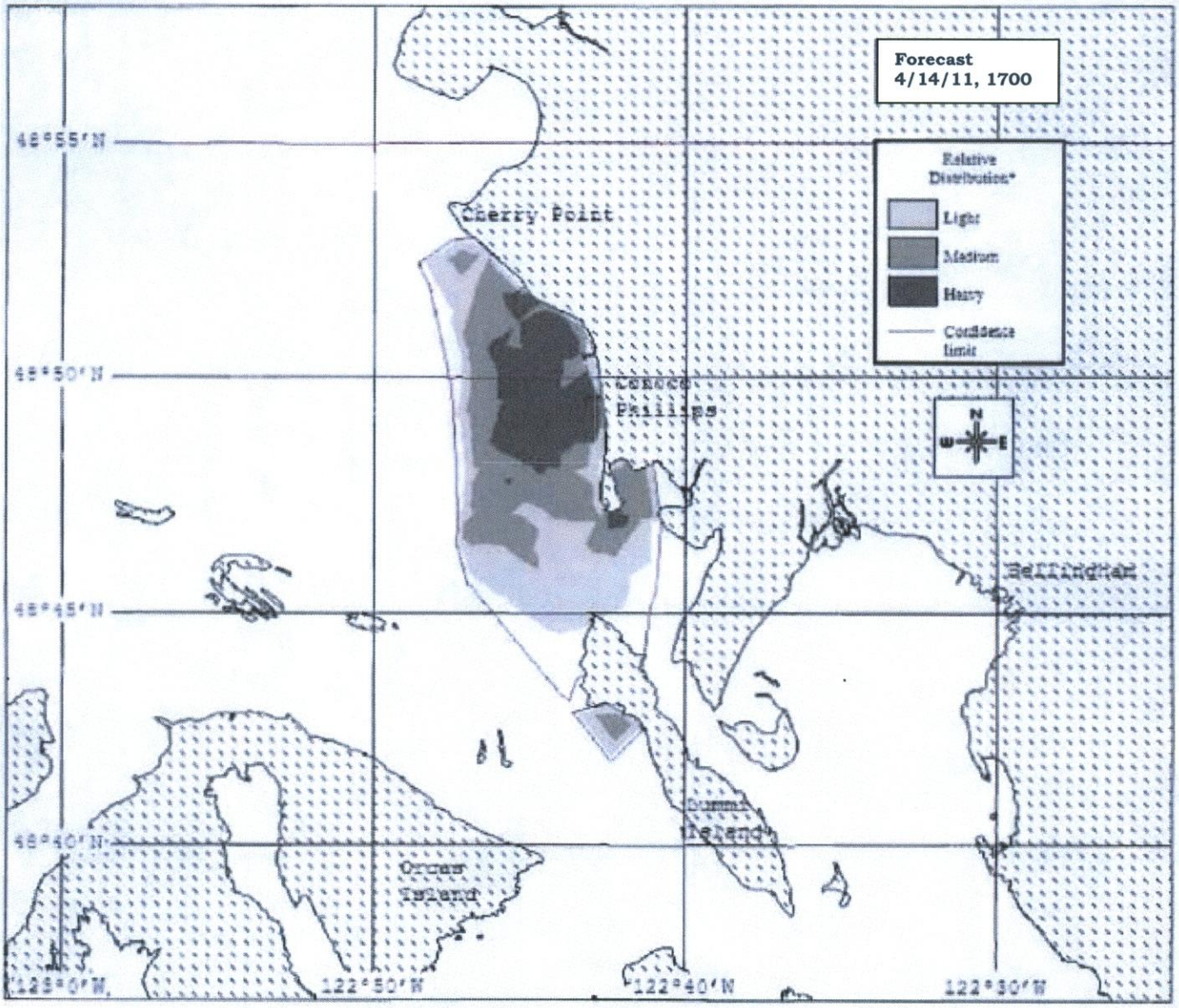
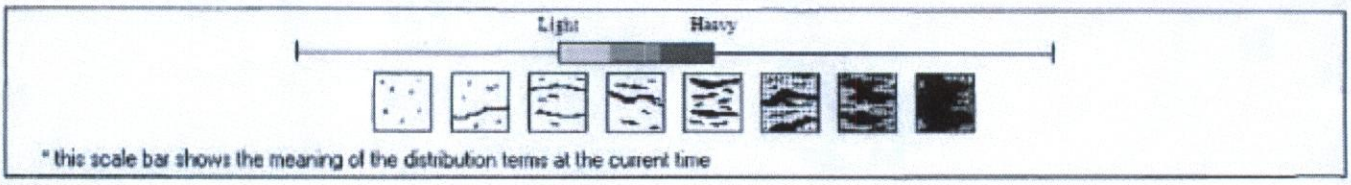
ConocoPhillips Drill 2011 **Trajectory Analysis**

Estimate for: 1700, 4/14/11

Prepared: 0700, 4/13/11 SSC

These estimates are based on the latest available information. Please refer to the trajectory analysis briefing and your Trajectory Technical Specialist for more complete information. This output shows estimated distributions of heavy, light, and medium concentrations as well as an outer confidence line. The confidence line is based on potential errors in the pollutant transport process.





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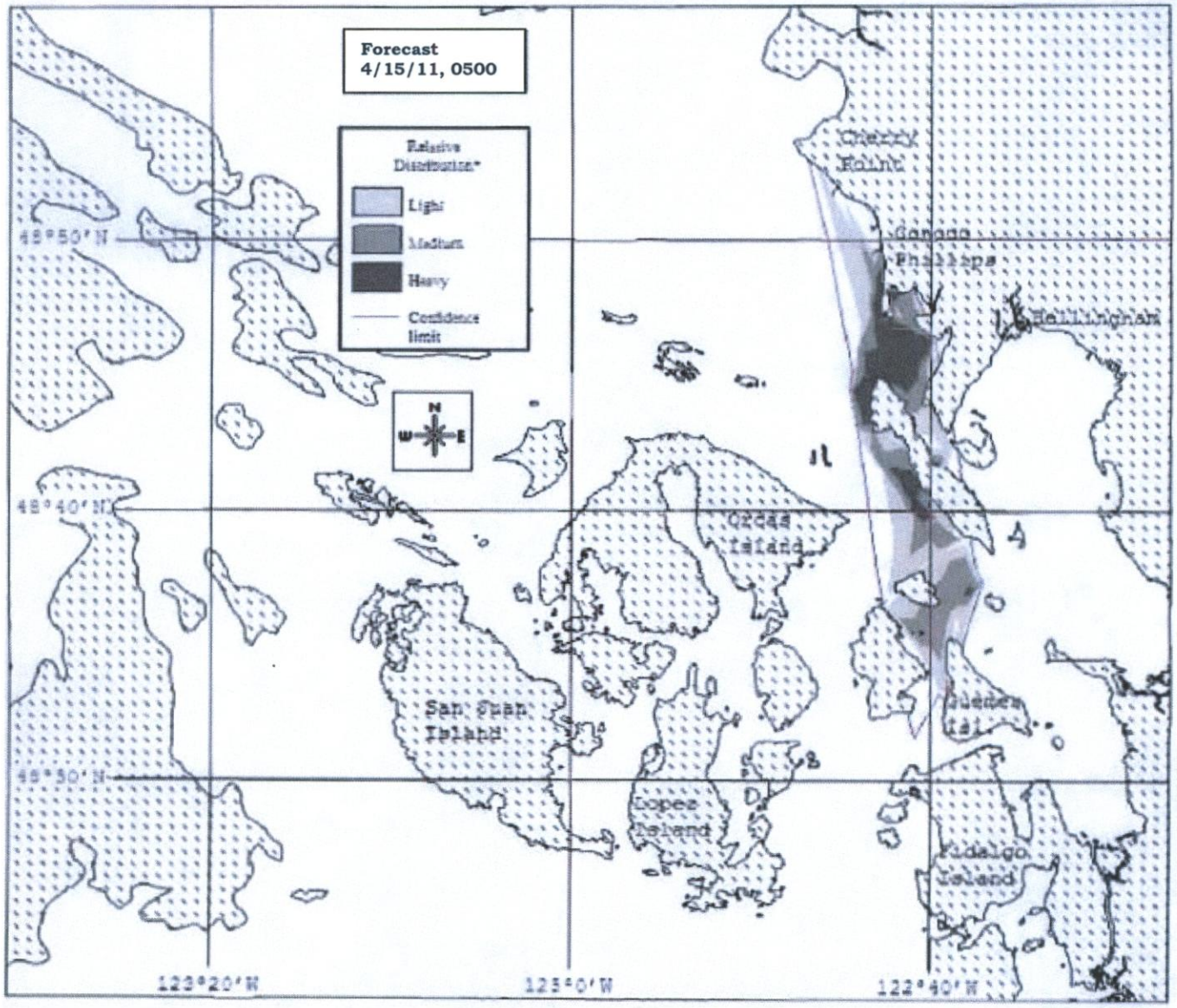
ConocoPhillips Drill 2011 **Trajectory Analysis**

Estimate for: 0500, 4/15/11

Prepared: 0700, 4/13/11 SSC

These estimates are based on the latest available information. Please refer to the trajectory analysis briefing and your Trajectory Technical Specialist for more complete information. This output shows estimated distributions of heavy, light, and medium concentrations as well as an outer confidence line. The confidence line is based on potential errors in the pollutant transport process.



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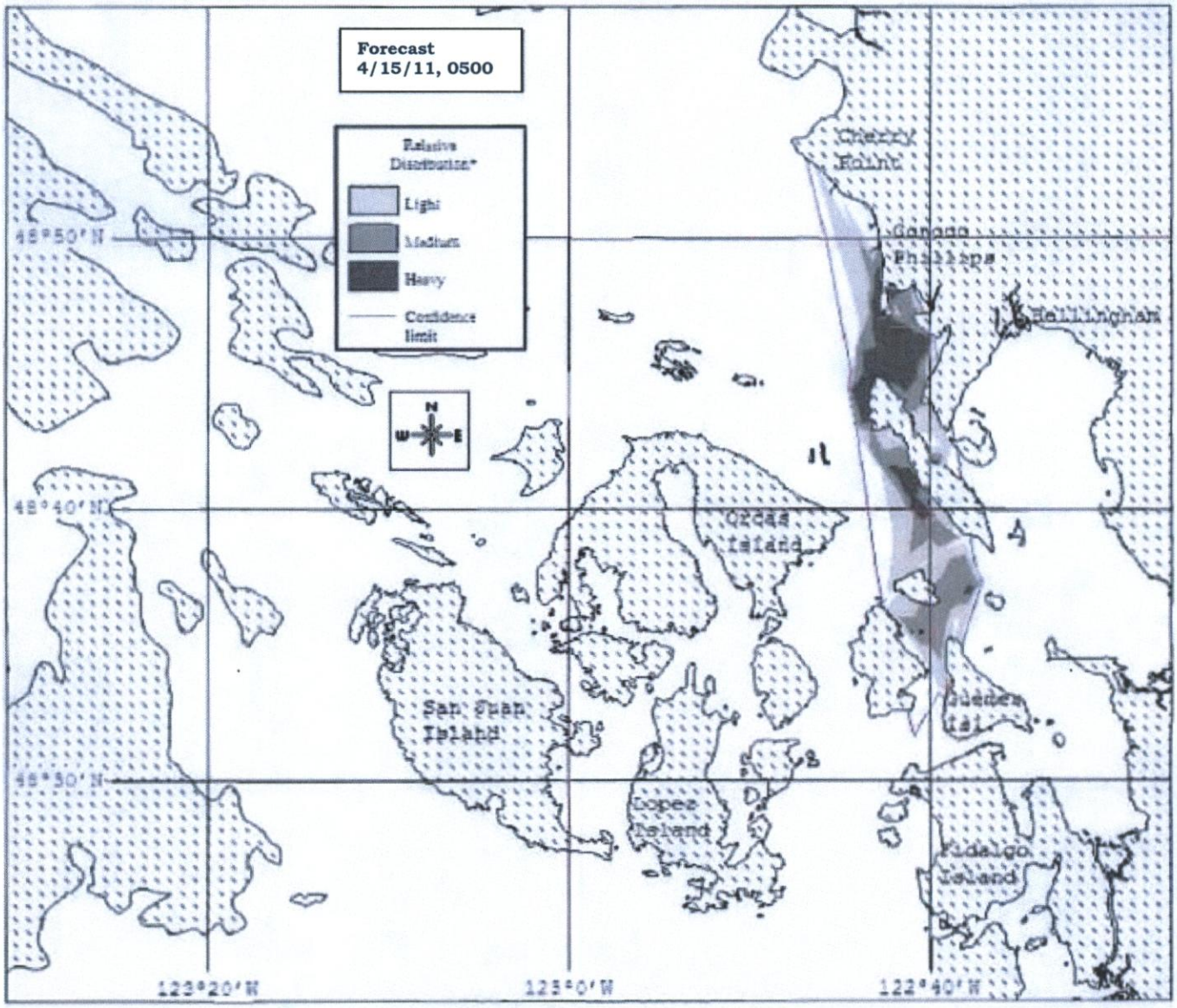
ConocoPhillips Drill 2011 **Trajectory Analysis**

Estimate for: 0500, 4/15/11

Prepared: 0700, 4/13/11 SSC

These estimates are based on the latest available information. Please refer to the trajectory analysis briefing and your Trajectory Technical Specialist for more complete information. This output shows estimated distributions of heavy, light, and medium concentrations as well as an outer confidence line. The confidence line is based on potential errors in the pollutant transport process.



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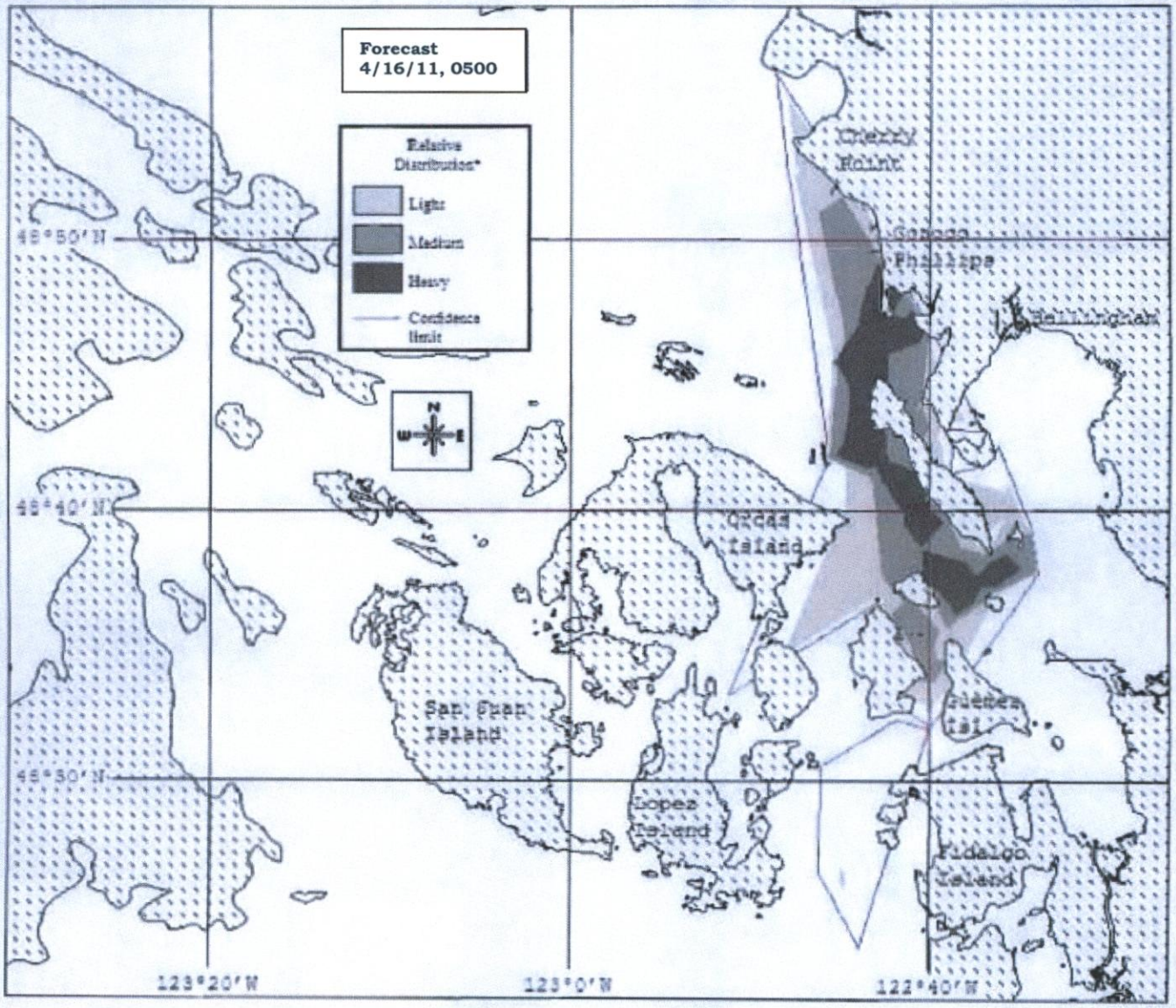
ConocoPhillips Drill 2011 **Trajectory Analysis**

Estimate for: 0500, 4/16/11

Prepared: 0700, 4/13/11 SSC

These estimates are based on the latest available information. Please refer to the trajectory analysis briefing and your Trajectory Technical Specialist for more complete information. This output shows estimated distributions of heavy, light, and medium concentrations as well as an outer confidence line. The confidence line is based on potential errors in the pollutant transport process.



INTEROFFICE MEMORANDUM

TO: MERLE JEFFERSON SR., EXCECUTIVE DIRECTOR
LEROY DEARDORFF, ENVIRONMENTAL DIRECTOR
JEREMY FREIMUND, WATER RESOURCES MANAGER

FROM: MONIKA LANGE, NATURAL RESOURCE ANALYST

SUBJECT: **MAY 04, 2011 KINDER MORGAN/MSRC HOVANDER PARK SPILL DRILL**

DATE: 5/10/11

CC:

Frank Lawrence III, Water Resources Planner I, and Don Kruse, Project Biologist, participated in the river oil spill drill hosted by Kinder Morgan and the Marine Spill Response Corporation (MSRC). The spill drill took place in Hovander Park, Ferndale, WA after a tour of the Kinder Morgan Laurel Station and class room training.

Frank participated in the boom deployment part of the drill, and Don participated in the safety team and the assembly of the decontamination station.

INTEROFFICE MEMORANDUM

TO:	MERLE JEFFERSON SR., EXCECUTIVE DIRECTOR LEROY DEARDORFF, ENVIRONMENTAL DIRECTOR JEREMY FREIMUND, WATER RESOURCES MANAGER
FROM:	MONIKA LANGE, NATURAL RESOURCE ANALYST
SUBJECT:	**JULY 27, 2011 LUMMI RIVER BOOM DEPLOYMENT DRILL (NPS-09)**
DATE:	7/29/11
CC:	RON TSO, CHIEF OF POLICE LINDA DELGADO, SALMON ENCHANCEMENT MANAGER,

The purpose of this memorandum is to summarize the spill drill that took place on July 27, 2011.

Participants:
The following LNR and LNPD staff participated in the drill:

1. Jeremy Freimund, Water Resources Manager
2. Frank Lawrence III, Water Resources Planner I
3. Jamie Mattson, Water Resources Specialist I
4. Jean Snyder, Water Resources Specialist II
5. Victor Johnson, GIS/Water Resources Specialist III
6. Monika Lange, Natural Resources Analyst
7. Sgt Edward Conway, LNPD
8. Officer Rich Hart, LNPD
9. Officer Jay Martin, LNPD
10. Don Kruse, Project Biologist
11. Frank Bob, Restoration Assistant
12. Linda Delgado, Salmon Enhancement Manager
13. Bill Revey, Sr., Assistant Seaponds Manager
14. Ernie Jefferson Jr., Fish Culturist
15. Bill Revey, Jr., Fish Culturist

Chad Huntley from the Marine Spill Response Corporation (MSRC) also participated and provided suggestions and hands-on support during the deployment.

Drill Strategy:
The exercise was a half-day oil spill response drill with boom deployment. The goal of the drill was to deploy boom strategy NPS-09 of the Geographic Response Plan (GRP) for the North Puget Sound (NPS) region (see attached diagram). NPS-09 places a boom across the mouth of the Lummi River and is intended to prevent oil from moving up into the Lummi River watershed.

Drill Goals:

1. In order to conserve limited spill response resources, determine if NPS-09 can be accomplished using 300 ft of boom rather than 400 ft as called for in the GRP.
2. Deploy "J" configuration that would allow oil collection by a vacuum truck from the east access road instead of the chevron configuration identified for NPS-09.
3. Determine the best method to access the west bank of the Lummi River mouth.
4. Determine and establish anchor points for the boom.
5. Determine actual time to deploy NPS-09.

Scenario:
During the pre-meeting held in the Sam Cagey room at the LNR office, Jeremy outlined the scenario for the day. In the scenario, oil from an oil spill at the ConocoPhillips refinery north of the Reservation was concentrating in Hale Passage and was predicted to enter Lummi Bay on the following high tide. The tide gates to the Seapond were already secured with deflection boom on the previous high tide. NPS-09 was to be deployed as the next step in the tribal response under the direction of the Unified Command. The low tide was expected to occur at 9:24 am at -0.85 ft MLLW, so boat access to the site was expected to be limited.

There is an access road along the sea wall at Lummi Bay on the east side of the Lummi River that was to be used to transport the boom trailer to the site. It was not known if it would be possible to cross the river mouth on foot at low tide, if a boat with a shallow draft would be needed, or if it would be possible to reach the west side of the river through the non-maintained road along the sea wall from Sandy Point Heights. After a discussion of the options at the pre-meeting, it was decided that a three-person team (Jeremy Freimund, Don Kruse, Victor Johnson) would try to cross the river with the LNR Lund boat, which would be launched from the east bank downstream from the deployment site.

Timeline:
Table 1 summarizes the spill drill events.

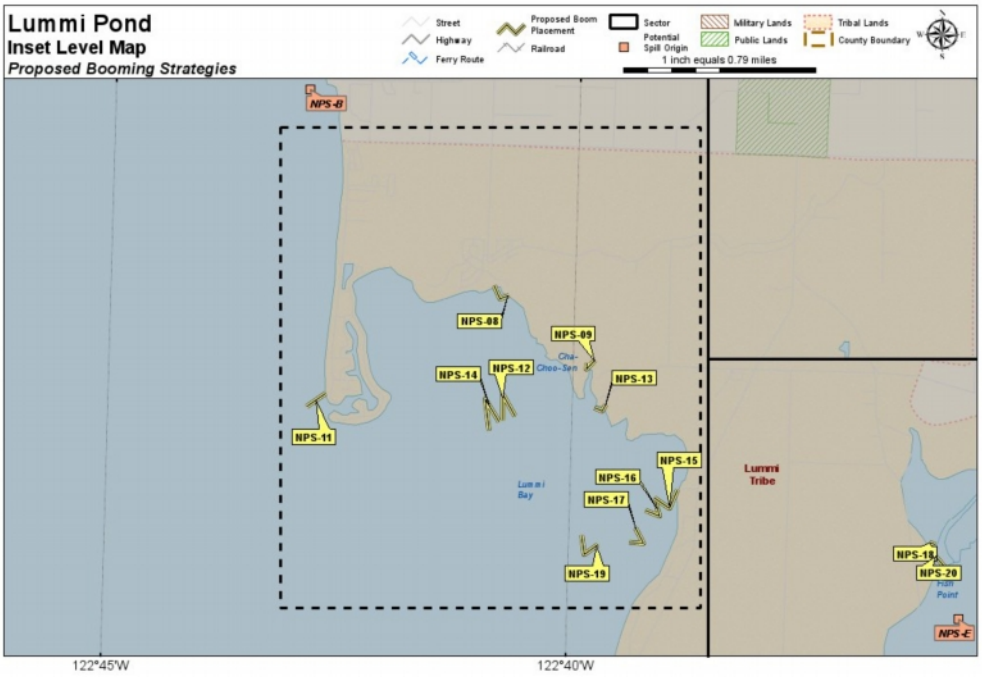
Table 1: Timeline of the July 27, 2011 Oil Spill Response Drill

Time	*Event*
8:40	Pre-meeting with explanation of the scenario, ICS overview, scheduling, and safety briefing.
9:05	End of pre-meeting. Mobilization of crew and drill equipment.
9:25	The drill equipment (boom trailer and Lund boat) leave the LNR campus.
9:35	Lund boat arrives at launch site; Boom trailer and crew arrive at NPS-09 deployment site.
9:42	Lund boat launches.
9:50	Lund boat arrives at NPS-09 deployment site.
9:53	Boom deployment starts.
10:03	Boom is deployed (no suitable anchor points on both banks). The boom is threaded between old pilings at west bank of the river.
10:04 to 10:30	Anchor points, belly line locations, and alternative access are scouted and discussed. The boom is repositioned out from the old pilings to give it more freedom of movement.
10:30	Boom reloading starts.
10:43	Boom reloaded onto the trailer.
10:55	Lund boat recovered.
11:00	Lund boat arrives back at LNR campus.
11:10	Boom trailer arrives back at LNR campus.
11:20	"Decontamination" (cleaning of mud) of the used boom starts using LNPD pressure washer.
11:50	Boom cleaned and reloaded onto trailer.
12:00	Lunch and de-briefing.
12:40	End of drill.

Results:
The following are "lessons learned" and recommendations resulting from the drill:

- The full 400 ft of the boom are needed to deploy NPS-09.
- A "J" configuration is more suitable for the site than a chevron as it will allow easier recovery of the product from the east side of the river.
- Access to the west bank of the Lummi River mouth is possible by crossing the river on foot at a tide level of approximately -0.85 ft MLLW. At this tide level, a boat was not necessary and was not maneuverable at the site. A low draft boat can be used at higher tide levels. Access from the road along the western extent of the seawall would be very time-consuming due to overgrown vegetation and would only be possible on foot. Improving this road would possibly result in increased trespass on Lummi tidelands and increased illegal dumping and is therefore not recommended.
- The time between the start of the mobilization from the LNR offices and the finish of the deployment of the boom was approximately one hour. The deployment of the boom itself took approximately 10 minutes.
- It is necessary to add "river anchors" to the existing spill equipment to anchor boom at NPS-09 and also at several other sites on the Reservation. The metal T-fence posts that are part of the equipment now are not adequate. Monika will source and buy the river anchors.
- Chad recommended securing the boom at 50 ft from both ends and a 150 ft from the east end with belly lines.
- The deflection boom should be augmented with absorbent sausage boom and pads to capture oil escaping under the deflection boom. These items should be brought along with the other equipment to the next spill drill for practice purposes (not for deployment).
- The muddy banks at the NPS-09 deployment site are very slick and soft in places.
- The LNPD pressure washer was very helpful in cleaning the mud from the boom.
- If resources allow, the boat should be retained on-site, upstream from the deployed boom to ensure access to the staff member on the west bank when the tide is in and to allow for the deployment of absorbent pads or sausage boom.

Images:
See the attached GRP diagram and images from the drill.



Lummi River — NPS-09-Average 4-90

Site Lat/Long:	N 48° 47.605' / W 122° 39.843', Sector Map NPS-4
Strategy Objective:	Exclusion, Collection - Keep oil out of river, collect oil if possible.
Implementation:	Deploy boom in a chevron, adjust angle and anchors based on real-time conditions. At tides below +2.5 should be able to deploy without a boat. But mud can be sticky. Site is vac. Truck accessible.
Site Safety Note:	Narrow dirt road, bank is steep and slippery.
Field Notes:	There are two access routes to the site. Hillaire RD and Kwina RD or Hilaire Rd just east of the Lummi River bridge. Get local tribal guide.
Resources Targeted:	tribal lands,resources, salmonids (anadromous), sensitive habitat
Fixed Anchors:	246: N 48° 47.615' / W 122° 39.815', Water Depth 0ft, E anchor point, may be able to use old pilings to help anchor boom, adjust as needed
Watercourse Description:	River with tidal influence

Suggested Equipment	
Quantity	**Description**
400 ft	B3 - River Boom, or other appropriate type
1 each	Danforth(s) or other appropriate anchor
1	Jet Boat
6 each	Stake(s)
1 each	Vac Truck(s)
Suggested Personnel	
1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS-09 Lummi River Boom Deployment Location

Pre-meeting.

Launching the Lund.

Mouth of the Lummi River at approximately -0.85 ft tide.

Boom deployment.

Boom Trailer on access road/levee.

First position for deployed boom.

Second position of deployed boom.

Retracting of boom.

Reloading the boom.

Bringing the boom up the levee bank.

Reloading on trailer.

Cleaning of boom at LNR campus ("Decontamination").

INTEROFFICE MEMORANDUM

TO: MERLE JEFFERSON, EXECUTIVE DIRECTOR

LEROY DEARDORFF, ENVIRONMENTAL DIRECTOR

JEREMY FREIMUND, WATER RESOURCES MANAGER

FROM: MONIKA LANGE, NATURAL RESOURCES ANALYST

SUBJECT: **ON-LAND OIL SPILL AT FISHERMAN'S COVE DOCK 8/17/2011**

DATE: 8/18/2011

CC:

On August 17, 2011, I received a telephone call at 9:15 am from Barry Hanowell, the Fisherman's Cove Dock Manager, that a 5-gallon on-land oil spill had occurred at the dock and that he had run out of absorbent pads. After informing Jeremy about the call, I retrieved one bag of pads (100 count) from the Natural Resource Department's Spill Response Container and delivered it to the dock. I arrived at the dock at approximately 9:35 am.

At the dock, Barry showed me that a bucket of machine oil that had been pushed over by an unknown person. Barry had already started to contain the oil with absorbent pads but did not have enough pads to contain all of the oil. I placed approximately 10 more pads on the spill to cover the entire puddle. Barry told me that they would be able to dispose of the used pads and I left the remainder of the bale at the cove and left the dock at 9:50 am. The next morning, August 18, 2011, I made a follow up visit and photographed the cleaned up area. Attached are pictures of the spill and the cleaned area.

Absorbent pads on on-land oil spill

Additional pads provided by the LNR; bucket that contained the oil in the background

Cleaned area on August 18, 2011

Close-up of cleaned area; puddle on the top from condensation on the metal pole

INTEROFFICE MEMORANDUM

TO: JEREMY FREIMUND, WATER RESOURCES MANAGER
FROM: MONIKA LANGE, NATURAL RESOURCE ANALYST
SUBJECT: **OCTOBER 17 -19, 2011 HAZWOPER TRAINING**
DATE: 12/1/11
CC:

The purpose of this memorandum is to summarize the Hazardous Waste and Emergency Response (HAZWOPER) standard training according to Occupational Safety and Health Administration (OSHA) requirements (CFR 1910.120[q][6][ii]) that took place on October 17 through 19, 2011.

The Samish Tribe in Anacortes, WA, hosted a free HAZWOPER 24h operations level training conducted by the Washington Department of Ecology. Twelve (12) participants from the Lummi Natural Resources Department (LNR) and the Lummi Nation Police Department (LNDP) attended the training. One participant (Greg Coulter, Shellfish Biologist at the Lummi Shellfish Hatchery) had to drop out of the course after one day due to sickness.

The following 11 participants completed the training and received certificates:

1. Colin Bob, Restoration Technician I
2. Chris Phair, Restoration Technician III
3. Frank Bob, Restoration Assistant
4. Monika Lange, LNR Natural Resources Analyst
5. Jean Snyder, Water Resources Specialist II
6. Don Kruse, Project Biologist
7. Ben Starkhouse, Harvest Manager
8. William Revey Jr., Fish Culturist
9. Gregg Dunphy, Forest and Fish Manager
10. Officer David Savage, LNPD
11. Officer Jay Martin, LNPD

Training agenda attached.

24-Hour HAZWOPER

Fidalgo Bay Resort
Anacortes, WA
October 17, 2011

Day 1

Time	Subject	Instructor
0800	Welcome & Introductions -Orientation and Agenda Review	David Byers, Ecology Todd Woodard, Samish Nation
0830	Northwest Area Contingency Plan	David Byers, Ecology
0900	Geographic Response Plans	David Byers, Ecology
0930	Basic Oil Spill Response -Notifications -Assessment -Shoreline Cleanup Assessment Teams (SCAT)	Dick Walker, Ecology
1015	**Break**	
1030	Oil Chemistry Behavior and Fate in the Environment	Heather Parker, US Coast Guard
1100	Dispersant and In-Situ Burn	Heath Parker, US Coast Guard
1200	**Lunch -on your own**	
1300	Spill Control and Containment -On-Water Recovery -Skimmer, Boom, Sorbents	Carl Anderson, Ecology
1400	Shoreline Cleanup Techniques	Dick Walker, Ecology
1445	**Break**	
1500	Natural Resource Damage Assessment Ephemeral Data Collection Plans	Rebecca Post, Ecology
1600	Sampling	Dale Davis, Ecology
1630	SCAT Exercise	Post/Davis, Ecology
1700	**Adjourn**	

24-Hour HAZWOPER

Fidalgo Bay Resort

Anacortes, WA

October 18, 2011

Day 2

Time	Subject	Instructor
0800	State and Federal Regulations	David Byers, Ecology
0930	Incident Command System	Derrick Miller, USCG
1000	Lessons From Deepwater Horizon	Derrick Miller, USCG
1030	Break	
1045	Wildlife Response	Brian MacDonald, WA F&W Chris Battaglia, Focus Wildlife
1200	Lunch -on your own	
1300	Tour of Vessels, Skimmers and Other Response Equipment	MSRC
1700	Adjourn	

24-Hour HAZWOPER

Fidalgo Bay Resort
Anacortes, WA
October 19, 2011

Day 3

Time	Subject	Instructor
0800	Hazard Identification	David Byers, Ecology
0830	Emergency Response Guide	David Byers, Ecology
0930	Physical Hazards Confined Spaces	Jacqui Schultz, Ecology
1000	Break	
1015	Hazardous Substances Chemical Hazards	Celia Jackson, Ecology
1045	Toxicology & Exposure Limits Air Monitoring	Jacqui Schultz, Ecology
1130	Site Hazard Evaluation Site Control	Celia Jackson, Ecology
1200	Lunch - on your own	
1300	Site Health and Safety Plan Emergency Response Plan Heat/Cold Stress	David Cline, Ecology
1400	Exposure Control -Respiratory Protection -Personal Protective Equipment	Howard Zorzi, Ecology
1500	Break	
1515	Decontamination	David Cline, Ecology
1545	Medical Surveillance & Record Keeping Drum & Container Handling	Howard Zorzi, Ecology
1615	Course Evaluations, Certificates and Adjourn	

INTEROFFICE MEMORANDUM

TO:	MERLE JEFFERSON SR., EXCECUTIVE DIRECTOR LEROY DEARDORFF, ENVIRONMENTAL PROGRAM DIRECTOR JEREMY FREIMUND, WATER RESOURCES MANAGER
FROM:	MONIKA LANGE, NATURAL RESOURCE ANALYST
SUBJECT:	**NOVEMBER 3, 2011 SEAPOND TIDEGATE OIL SPILL RESPONSE DRILL (NPS-14)**
DATE:	11/18/11
CC:	RON TSO, CHIEF OF POLICE

The purpose of this memorandum is to summarize the spill drill that took place on November 3, 2011.

Participants:
The following LNR and LNPD staff participated in the drill:

1. Jeremy Freimund, LNR Water Resources Manager
2. Frank Lawrence III, LNR Water Resources Planner I
3. Jamie Mattson, LNR Water Resources Specialist I
4. Victor Johnson, LNR GIS/Water Resources Technician III
5. Monika Lange, LNR Natural Resources Analyst
6. Officer David Savage, LNPD
7. Officer Jay Martin, LNPD
8. Don Kruse, LNR Project Biologist
9. Frank Bob, LNR Restoration Assistant
10. Gregg Dunphy, LNR Forest Fish Manager

The LNR Executive Director (Merle Jefferson) and the Environmental Program Director (Leroy Deardorff) attended the briefing meeting and observed part of the drill. The LNR ESA Policy Representative (Randy Kinley) also observed part of the drill. Ken Schacht and Chad Huntley from the Marine Spill Response Corporation (MSRC) participated throughout the drill and provided suggestions and hands-on support during the deployment.

Drill Strategy:
The exercise was a half-day oil spill response drill with boom deployment. The goal of the drill was to deploy boom strategy NPS-14 of the Geographic Response Plan (GRP) for the North Puget Sound (NPS) region (see attached diagram). NPS-14 calls for deflection boom to be placed in a chevron configuration in front of the western tide gate of the Seapond Aquaculture Facility to prevent oil from entering the Seapond.

Drill Goals:

1. Test NPS-14.
2. Test accessibility of site for the boom trailer.
3. Practice use of tension lines ("belly lines") on deflection boom.
4. Practice team work.

Briefing and Scenario:
During the pre-meeting held in the Sam Cagey room at the LNR office, Jeremy outlined the scenario for the day and addressed each of the agenda items. In the scenario, oil from an oil barge accident north of Lummi Island (NPS-C) was predicted to enter Lummi Bay. The Unified Command at the ConocoPhillips Refinery directed the Lummi Oil Spill Response Team to protect the Seapond tide gates.

Briefing Agenda:
1. Check in
2. Briefing/Scenario
3. ICS Review
4. Safety (Rocks, Water [PFDs], Bees, Hypothermia)
5. Deployment (Boom, Sorbent Pads, Sorbent Boom, Belly Line)
6. Debriefing/Lunch
7. Check out

Tide Predictions (Cherry Point Station) for November 3, 2011:
Low Tide: 4:34 am, 1.2 ft
High Tide: 12:19 pm, 9.1 ft
Low Tide: 7:14 pm, 4.2 ft

The road leading along the top of the Seaponds Dike dips down sharply when crossing the two tide gates located along the western extent of the dike. In order to reach the site of NPS-14, the boom trailer has to cross the tide gates at NPS-12 and ideally cross the tide gates that are to be protected at NPS-14 too. The road had been scouted the day before the drill and measurements indicated that it should be possible to tow the boom trailer across the tide gates but with very low margins.

Timeline:
Table 1 summarizes the spill drill events.

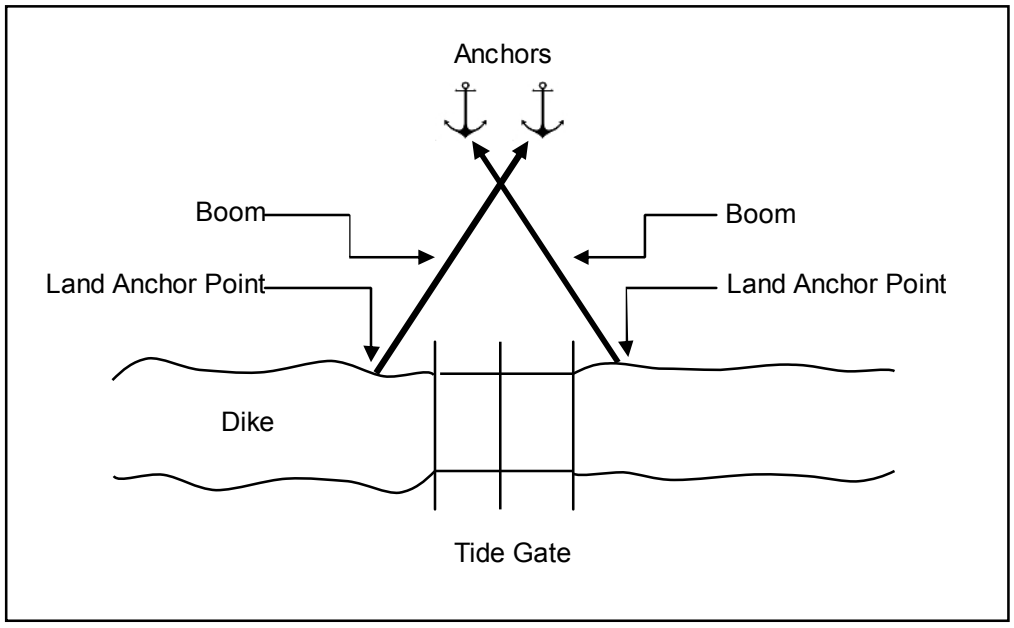
Table 1: Timeline of the November 3, 2011 Oil Spill Response Drill

Time	*Event*
10:37 am	Pre-meeting with explanations of scenario and goals, ICS refresher, safety briefing, and job assignments.
11:07 am	Mobilization
11:28 am	The LNR Spill Response Boat "Responder" leaves the Central Campus.
11:33 am	Boom trailer leaves Central Campus.
11:39 am	The "Responder" arrives at the Gooseberry Point dock.
11:45 am	The "Responder" launches from the dock.
11:53 am	The "Responder" and the boom trailer arrive at the site of NPS-14 (tide gates).
12:00 pm	Start of boom unloading.
12:15 pm	The second land anchor is tied up after the boom was pulled by the "Responder" across the tide gate.
1:13 pm	The "Responder" departs the site after the deployment and evaluation of several boom configurations.
1:21 pm	Arrival of the "Responder" at the Gooseberry Point dock.
1:31 pm	The "Responder" leaves the dock.
1:35 pm	Boom reloading on the trailer completed.
1:40 pm	The "Responder" arrives at the Central Campus.
1:42 pm	The boom trailer arrives at the Central Campus.
1:45 pm	Lunch, de-briefing, and check out.
2:30 pm	Cleaning of the "Responder" and re-storing of supplies.
3:00 pm	End of drill.

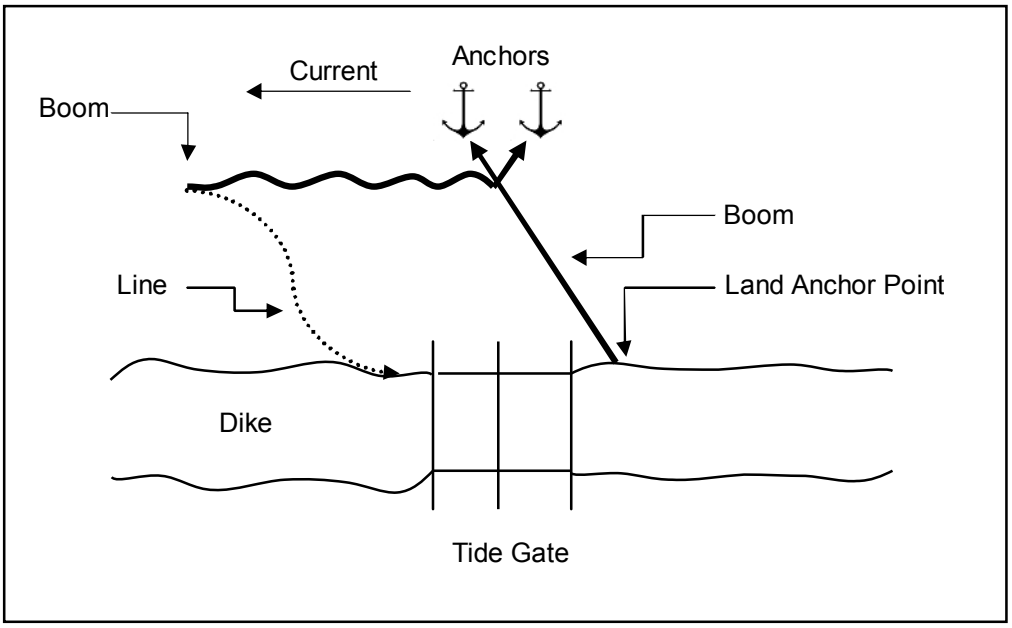
Results:

The following are "lessons learned" and recommendations resulting from the drill:

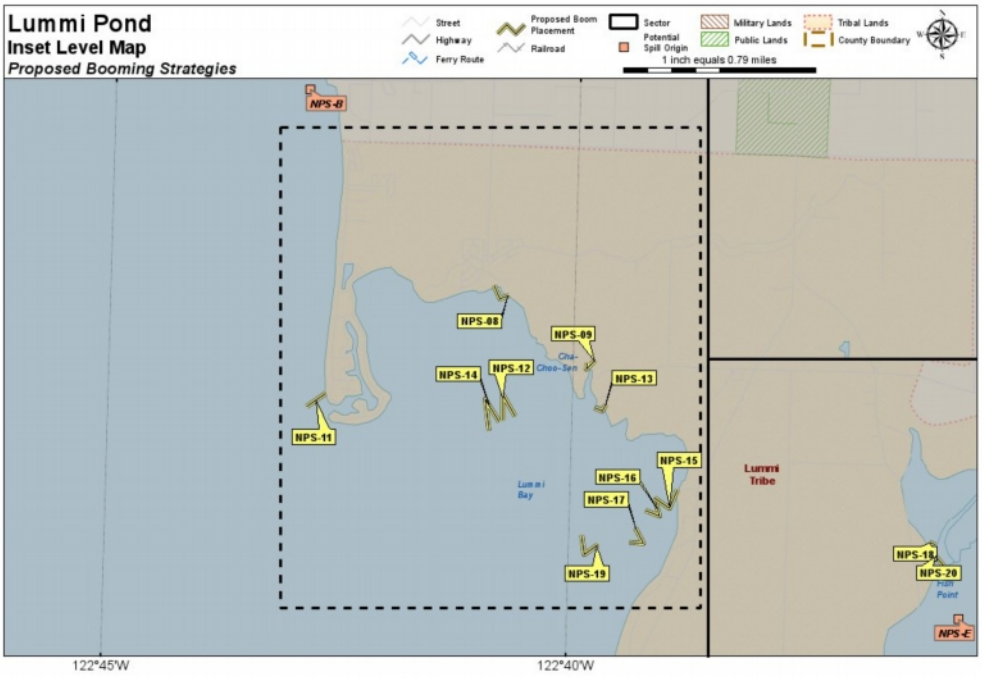
- It is possible to tow the boom trailer along the Dike access road even though the back of the trailer scraped the roadway.
- The two hand-held radios that are used for spill response drills proved to have a very short range. Communication between the boat crew and shore crew was not possible when the boat was still at Gooseberry Point and the shore crew on the dike.
- There are good anchor points for the deflection boom available close to the tide gates at NPS-14. Because the anchor points are close to the sides of the tide gates, 400 ft of boom anchored at the center point (200 ft) form a very steep triangle that would not effectively deflect oil. The boom was also anchored at 150 ft and at 250 ft from the shore anchor point. The team shortened the boom to 300 ft and then to 200 ft and found the 200 ft configuration to work best. 200 ft of boom would also preserve resources.
- Due to the difficulty in deploying the boom with the tidal currents and trying out different boom configurations, the tension lines were not deployed.
- The boat crew had difficulties identifying the anchor points on the deflection boom, as all the markings were turned to the inside of the configuration. Better marking of the anchor points is needed. (The anchor points are located at the metal connectors and in the center of each 100 ft boom section.)
- Ken Schacht (MSRC) recommended deploying two anchors for this strategy. Each anchor will keep one leg of the boom under tension even when the current changes due to the tides (see diagram).



- Officer Jay Martin suggested keeping the boom at the land anchor points on long lines so that one leg of the boom could always be released to act as a loose leg parallel to the current. This would aid the deflection of the oil away from the tide gates.

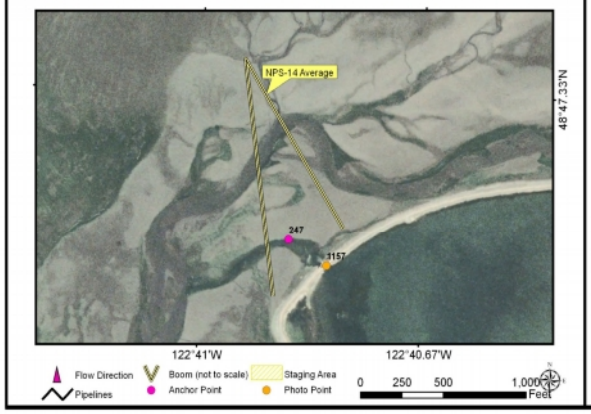


- Ken pointed out that either configuration would need continuing attention as the boom will be moved around by shifting currents and changing tide levels.



Lummi Pond NW-2 — NPS-14-Average 4-100

Site Lat/Long:	N 48° 47.262' / W 122° 40.838', Sector Map NPS-4
Strategy Objective:	Exclusion - Keep oil out of pond.
Implementation:	Gates and raceways are in poor condition, as they deteriorate successful exclusion of oil from the Sea Pond Aquaculture Facility via this structure will be increasingly difficult, due to increasing flow rate.Deployment of a chevroned exclusion boom would help deflect oil away from the gates on flood tide. The substantial pressure against the boom would require solid shore anchor points, and robust anchor gear for the offshore apex.
Site Safety Note:	Sea Pond Dike Rd., is a very bumpy dirt road with large periodic dips.
Field Notes:	You can deploy from the Sea Pond Dike Rd., but you need a vehicle with high clearance.
Resources Targeted:	special protection area, tribal lands/resources
Fixed Anchors:	247: N 48° 47.196' / W 122° 40.865', apex of chevron, will need to place anchors further out, adjust based on real-time conditions
Watercourse Description:	Pond



Suggested Equipment	
Quantity	**Description**
400 ft	B2 - Contractor Boom
2 each	Danforth(s) or other appropriate anchor
1 each	Work Boat(s)
Suggested Personnel	
1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/30/2008

Mobilization

Trailer passing first tide gate

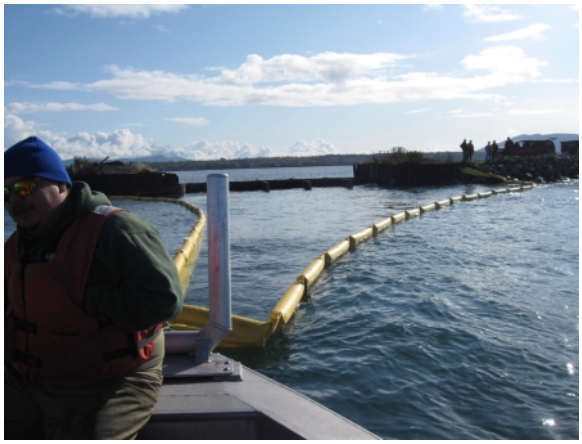
Boom unloading

Responder tows boom off shore

400 ft of boom deployed in steep triangle

Grappling for anchor point

Shortening of boom



300 ft of boom deployed

200 ft of boom deployed

Returning the boom to the dike..

Landing the boom

Reloading the boom onto the trailer